CLAIMS

We claim:

1. An optical projection system, comprising:

a first image source that is configured to generate a first array of image pixels;

a first lens assembly that is configured to project the first array of image pixels onto a non-planar surface;

a second image source that is configured to generate a second array of image pixels; and

a second lens assembly that is configured to project the second array of image pixels onto the non-planar surface such that the first array of image pixels and the second array of image pixels overlap along a single edge and a combination of the first array of image pixels and the second array of image pixels covers a continuous portion of the non-planar surface.

2. The optical projection system of Claim 1, wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto the surface such that there is a constant angular separation between adjacent pixels.

3. The optical projection system of Claim 1, wherein the non-planar surface is a hemispherical surface.

4. The optical projection system of Claim 3, wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto hemispherical surfaces of varying radii.

5. The optical projection system of Claim 1, wherein the first and second image sources comprise first and second cathode ray tubes, respectively.

6. The optical projection system of Claim 1, wherein the first and second image sources comprise first and second field emitter arrays, respectively.

7. The optical projection system of Claim 1, wherein the first and second image sources comprise respective units selected from the group of units consisting of a digital light processing unit, a liquid crystal display unit, and a liquid crystal on silicon unit.

8. The optical projection system of Claim 1, further comprising:

a dome that comprises an inner surface; and

wherein the first and second lens assemblies are configured to respectively project the first and second arrays of image pixels onto the inner surface of the dome such that the first array of image pixels and the second array of image pixels overlap along the single edge and the combination of the first array of image pixels and the second array of image pixels covers a continuous, 180 degree portion of the inner surface.

9. The optical projection system of Claim 1, wherein the first lens assembly and the second lens assembly are positioned apart from each other such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface.

10. The optical projection system of Claim 1, wherein the combination of the first array of image pixels and the second array of image pixels covers a continuous, 180 degree portion of the surface.

11. A method of projecting an image, comprising:

projecting a first array of image pixels onto a non-planar surface; and

projecting a second array of image pixels onto the non-planar surface such that the first array of image pixels and the second array of image pixels overlap along a single edge and a combination of the first array of image pixels and the second array of image pixels covers a continuous portion of the non-planar surface.

12. The method of Claim 11, wherein projecting the first array of image pixels comprises:

projecting the first array of image pixels onto the non-planar surface such that there is constant angular separation between adjacent pixels; and

projecting the second array of image pixels onto the non-planar surface such that there is constant angular separation between adjacent pixels.

13. The method of Claim 11, wherein the surface is a hemispherical surface.

14. The method of Claim 11, wherein projecting the first array of image pixels and projecting the second array of image pixels comprises:

projecting the first and second arrays of image pixels onto the surface such that a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels overlap along the single edge on the surface is approximately equal to a brightness of the first and second arrays of image pixels where the first and second arrays of image pixels do not overlap on the surface.

15. The method of Claim 11, wherein the combination of the first array of image pixels and the second array of image pixels covers a continuous, 180 degree portion of the non-planar surface.